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Statewide Mineral Resource Inventory of Wyoming: A Review of Salable Minerals

By: Patrick Canney
Bureau of Land Management - Wyoming

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Resources Development Internship Program
Western Interstate Commission for Higher Education

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U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

STATEWIDE MINERAL RESOURCE INVENTORY OF WYOMING

A REVIEW OF SALABLE MINERALS

a short paper

by

Patrick Canney

in fulfillment of Project B 152

for

Western Interstate Commission for Higher Education

Bureau of Land Management
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The subject of this paper will be a brief explanation of my involvement and participation in the Statewide Mineral Resource Inventory for Wyoming being carried out by the Bureau of Land Management. My part in the inventory was the researching and mapping all known occurrences and deposits of salable minerals. The minerals primarily researched in this study were sand and gravel, and scoria or burnt coal. Secondary minerals include building stone, ledgerock, and possible sources of rock suitable for crushing.

The purpose of this inventory was to identify public-owned mineral resources under the jurisdiction of the Bureau of Land Management. The inventory data will be added to the Bureau's total resource data base. This data base is used by Bureau managers in formulating multiple use resource plans and management programs. Securing a data base for salable minerals was accomplished by mapping all sources of potential mineral deposits as well as sites of current mining operations. Information from mineral maps was transferred onto BLM mineral-ownership quadrangles with mylar overlays. Mylar was used for the purpose of easy addition or substitution of data and the preservation of the base maps. The deposits were mapped with the sources cited for reference back for specifications on extent of deposits, quality of the minerals, and in some cases the tonnage being removed. With this information the Bureau can keep a check on mining activities on federal land and plan for the issuing of

mining permits in the future as the demand arises. Putting together the data available meant travelling to the places where the information was compiled and easily accessible.

The agencies possessing the information needed for the inventory were the Wyoming State Highway Department, the U.S. Geological Survey, the Wyoming Geological Survey, the Bureau of Land Management mineral libraries, the Bureau of Reclamation files, the Department of Environmental Quality mining files, and the Natrona County state mineral library. The U.S. and Wyoming Geological Surveys provided the base of the inventory with the generalized state mineral maps showing approximate locations of major mineral deposits. These are initial reconnaisance maps of extensive deposits with limited descriptions of quality and quantity. The Wyoming State Highway Department data concerned information on current mining locations and potential mineral areas for use in the acquisition of highway construction materials. The maps of the Highway Department were very detailed including accurate descriptions of quantity and breakdown of rock sizes and orientations of the minerals. Information on current open pit mining was supplied by the Department of Environmental Quality's Permit to Mine files which included past as well as current mining operations. Another source of information on pit mining was the Bureau of Reclamation files in the Natrona County State Mineral Library. The purpose of recording old mining sites being reclaimed is to keep track of

areas for use as potential mining sites in the future. The data acquired from the Bureau of Land Management files was the primary source of information on scoria (burnt coal) deposits. Scoria data is common on coal bed maps which were very extensive in the Powder River Basin . Scoria is also used for construction materials along with sand and gravel. The areas of sand and gravel deposits were alluvial gravel terraces , stream bed deposits, and areas of glacial outwash and deposition. These deposits were recorded on maps with an accompanying Mineral Resource Area Identification and Evaluation sheets (last page). These sheets are the reference back to the source data for further investigation of the deposit. There is a need for further research in order to add more clarity to the inventory and to put the information in more of a commercial context of salable minerals.

The major effort in the furthering of this study should be the complete field checking of these deposits and the cataloging of mineral areas with categories of economic and environmental factors. Economic factors would include size of the deposit, accessibility, market orientation, and production costs of the mining operation. Environmental factors include aesthetic changes in the landscape, groundwater and water course factors, wildlife, population density, and reclamation ability. The issuing of permits to mine should make use of existing pits and where existing pits are not available, new pits should be located in an area already being used for commercial or

industrial activity. The field checking of these potential sources of material should include gross estimations of tonnage and details of the rock structure and consolidation. A study of scoria deposits could be completed by the use of U2 aerial infrared photography which carries a yellow signature for scoria deposits. This technique is just being perfected now at the Wyoming Geological Survey at Laramie.

There should be an extention of the inventory program to secure the information needed for a complete data base with which to plan future policies and programs. I consider my work as a good base for more detailed study of mineral resource data acquisition. The inventory is currently at the Bureau of Land Management State Office in Cheyenne and is available for public inspection.

BUREAU OF LAND MANAGEMENT
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INDICATED MINERAL RESOURCE AREA IDENTIFICATION AND EVALUATION

County: _____ Identification No: _____

Township: _____ Range: _____

Mining District: _____

CLASS OF DEPOSIT: Locatable lode (___), Placer (___); Leasable (___), Salable (___)

PRINCIPAL VALUABLE CONSTITUENTS IDENTIFIED:

Gold	___	Titanium	___	Mercury	___	Diatomite	___
Silver	___	Tungsten	___	Fluorspar	___	Gypsum	___
Lead	___	Molybdenum	___	Barite	___	_____	___
Zinc	___	Uranium	___	Oil and Gas	___	_____	___
Copper	___	Antimony	___	Building Stone	___	_____	___
Iron	___	Beryllium	___	Sand and Gravel	___	_____	___

VALUE OF PRODUCTION: Negligible: ___ Over $100,000 ___ Over $10,000,000 ___

ANALYSIS AND EVALUATION:

Area contains one or more active mining operations or is the scene of active prospect or exploration activity. ___

Area is classified by the U.S.G.S. as being prospectively valuable for leasable minerals. ___

Area is included in this inventory on basis of favorable geologic conditions. ___

Area manifests none of the above but is heavily staked with mining claims (___); or Bureau files indicate possible mineral in character classification (___).

Potential of area for discovery of valuable mineral resources in the foreseeable future is: Excellent (___), Good (___), Fair (___), Poor (___).

COMMENTS: It is possible this area will conflict with other management programs in the foreseeable future. ___

Other: _____

_____

_____

_____

_____

_____

REFERENCES:

_____ _____

Reviewer Date

This intern report was read and accepted by a staff member at:

Agency: Bureau of Land Management Wyoming State Office

Address: P.O. Box 1828 Cheyenne, Wyoming 82002

This report was completed by a WICHE intern. This intern's project was part of the Resources Development Internship Program administered by the Western Interstate Commission for Higher Education (WICHE).

The purpose of the internship program is to bring organizations involved in community and economic development, environmental problems and the humanities together with institutions of higher education and their students in the West for the benefit of all.

For these organizations, the intern program provides the problem-solving talents of student manpower while making the resources of universities and colleges more available. For institutions of higher education, the program provides relevant field education for their students while building their capacity for problem-solving.

WICHE is an organization in the West uniquely suited for sponsoring such a program. It is an interstate agency formed by the thirteen western states for the specific purpose of relating the resources of higher education to the needs of western citizens. WICHE has been concerned with a broad range of community needs in the West for some time, insofar as they bear directly on the well-being of western peoples and the future of higher education in the West. WICHE feels that the internship program is one method for meeting its obligations within the thirteen western states. In its efforts to achieve these objectives, WICHE appreciates having received the generous support and assistance of the Economic Development Administration; the Jessie Smith Noyes Foundation; the National Endowment for the Humanities; the Wyoming Office of Manpower Planning; and of innumerable local leaders and community organizations, including the agency that sponsored this intern project.

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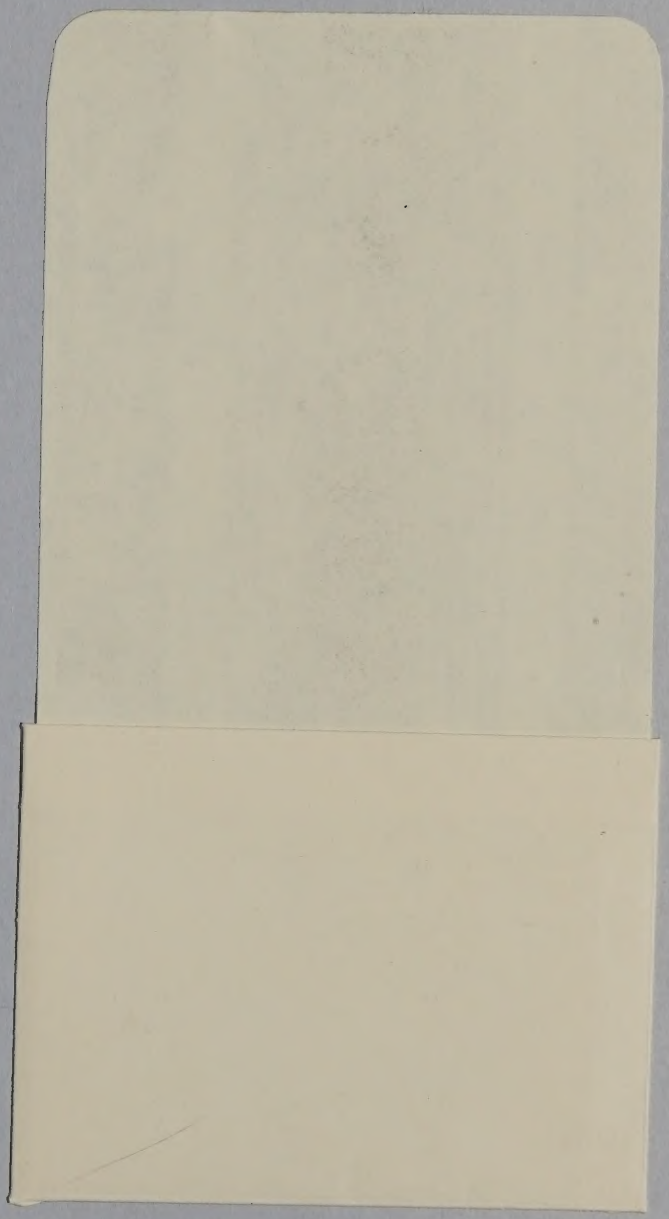
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